

The Health Committee submit, for the information of the Council, the following report of the Officer of Health.

(Signed) THOS. SCHOFIELD,  
*Chairman,*

Town Hall, Manchester,  
7th May, 1888.

[COPY]  
REPORT.

POPULATION.

For the townships of Harpurhey, Bradford, and Rusholme, we have taken the Registrar General's population. For the remainder of the townships, forming the City of Manchester, we have made a careful examination of the Overseers' books, from which we have abstracted the number of occupied or inhabited houses. The number of houses multiplied by the average number of persons to each house, as determined by the census of 1881, gives the following estimates of population :—

Registration Sub-District	Inhabited Houses	Estimated Population
Ancoats .....	10,014 .....	47,666
Central .....	7,436 .....	39,615
St. George's .....	12,775 .....	61,447
Hulme .....	14,656 .....	74,012
Chorlton-upon-Medlock.....	11,555 .....	58,122
Ardwick .....	6,630 .....	32,420
Cheetham .....	4,738 .....	25,822
Beswick.....	1,875 .....	9,375
Registrar General's :—		
Harpurhey.....	— .....	6,655
Bradford .....	— .....	21,157
Rusholme .....	— .....	13,410

Total Population of Manchester—389,701.

The total number of deaths within the homes of the people in the City of Manchester during the year 1887 (53 weeks) was 9,004, which, in a population of 389,701, is equal to a death-rate of 23·10 per 1,000 ; but 557 deaths took place in public hospitals within the City, and 165 in Monsall (from infectious diseases), of persons removed to that hospital from Manchester. 20 inquests were held on the bodies of persons unknown in the City, and there were 45 inquests on persons drowned, &c. These, added to the preceding number, will raise the death rate to 25·12 per 1,000. Including 837 deaths in Crumpsall Workhouse, the death rate will be 27·27 per 1,000.

In the several registration sub-districts of the City, excluding the 65 special coroner's cases and deaths occurring in hospitals, the rates of mortality in the years 1886 and 1887 were :—

Registration Sub-District	Rate per 1,000 of Population	
	1886	1887
Ancoats .....	24·4	29·8
Central .....	21·4	22·3
St. George's .....	21·8	26·5
Hulme .....	21·3	23·8
Chorlton-upon-Medlock .....	19·9	19·6
Ardwick .....	21·2	19·9
Cheetham .....	14·4	16·1
Beswick .....	22·0	23·0
Harpurhey .....	18·1	18·9
Bradford .....	20·1	20·3
Rusholme .....	11·0	13·7

Number of deaths and rate per 1,000 in the quarters of the year 1887 :—

	Deaths	Rate per 1,000
March Quarter .....	2,779	28·5
June „ .....	2,748	28·2
September, „ .....	2,429	24·9
December „ .....	2,672	27·4

AVERAGE NUMBER OF DEATHS IN THE WINTER QUARTERS OF 1881 TO 1886, AND DEATHS IN THE WINTER QUARTERS OF 1887, WITH THEIR RATE OF MORTALITY, EXCLUSIVE OF HARPURHEY, BRADFORD, AND RUSHOLME :—

	1881-6	1887
Deaths .....	2,351	2,587
Death Rate per 1,000 .....	27·46	29·6

AVERAGE MORTALITY FROM DISEASES OF THE LUNGS AND FROM WHOOPING COUGH FROM 1881 TO 1886, AND THE MORTALITY FOR 1887, EXCLUSIVE OF HARPURHEY, BRADFORD, AND RUSHOLME :—

1881-6		1887	
Diseases of the lungs	2,841	Diseases of the lungs	3,066
Whooping cough .....	236	Whooping cough .....	195
Total .....	<u>3,077</u>	Total .....	<u>3,261</u>

AVERAGE DEATHS FROM DISEASES OF THE LUNGS AND FROM WHOOPING  
COUGH, IN EACH QUARTER OF THE YEARS 1881 TO 1886, AND THE  
DEATHS IN 1887, EXCLUSIVE OF HARPURHEY, BRADFORD, AND RUSHOLME:—

	<i>March Quarter</i>		<i>June Quarter</i>		<i>Sept. Quarter</i>		<i>Dec. Quarter</i>	
Year.	Diseases of lungs	Whooping cough	Diseases of lungs	Whooping cough	Diseases of lungs	Whooping cough	Diseases of lungs	Whooping cough
1881-6...	868 ...	68 ...	741 ...	84 ...	522 ...	44 ...	710 ...	41
1887.....	910 ...	75 ...	791 ...	54 ...	522 ...	30 ...	844 ...	30

DEATHS FROM TYPHUS AND TYPHOID FEVER, EXCLUSIVE OF HARPURHEY,  
BRADFORD, AND RUSHOLME:—

	Deaths	Rate per 1,000 of Population
Average, 1871-1880 ...	178 .....	·50
1881-1886 ...	83 .....	·24
1887 ...	110 .....	·31

AVERAGE NUMBER OF DEATHS AND RATE PER 1,000 OF THE POPULATION IN  
EACH QUARTER OF THE YEARS 1881-86, AND THE NUMBER OF DEATHS AND  
RATE PER 1,000 OF EACH QUARTER OF 1887, EXCLUSIVE OF HARPURHEY  
BRADFORD, AND RUSHOLME:—

	No. of Deaths.	Rate per 1,000 of Population.
Average, 1881-86		
March Quarter .....	2,351 ...	27·47
June ,, .....	2,175 ...	25·41
September ,, .....	2,027 ...	23·66
December ,, .....	2,118 ...	24·75
1887		
March Quarter .....	2,587 ...	29·69
June ,, .....	2,560 ...	29·38
September ,, .....	2,267 ...	26·02
December ,, .....	2,472 ...	28·37

DEATHS FROM SMALLPOX.

1887 ..... 5 Deaths in Monsall Hospital.

The average deaths per annum for the six years (1881-86 inclusive), and the deaths in 1887 (exclusive of Harpurhey, Bradford, and Rusholme), from the three infectious diseases of children have been :—

	1881-86	1887
Whooping cough .....	236 .....	195
Measles.....	221 .....	648
Scarlet fever.....	163 .....	298



The average number of deaths from diarrhoea, almost exclusively a disease of the late summer months (August and September), for the last six years (1881 to 1886 inclusive), and the deaths in 1887, exclusive of Harpurhey, Bradford, and Rusholme :—

1881–86 .....	369
1887 .....	444

DEATHS AND DEATH RATE PER 1,000 OF THE POPULATION FROM ALL CAUSES, INCLUDING THE DEATHS IN MONSALL HOSPITAL AND CRUMPSALL WORKHOUSE, EXCLUSIVE OF HARPURHEY, BRADFORD, AND RUSHOLME :—

	Deaths	Rate per 1,000 of Population
Average, 1871–1880 ...	9,556 .....	27·26
1881–1886 ...	8,671 .....	25·34
1887 ...	9,876 .....	28·34

#### DEATHS FROM THE FIVE ZYMOTIC DISEASES.

SMALLPOX, MEASLES, WHOOPING COUGH, FEVER, AND SCARLATINA, INCLUDING DEATHS IN MONSALL HOSPITAL, EXCLUSIVE OF HARPURHEY, BRADFORD, AND RUSHOLME :—

	Deaths	Rate per 1,000 of Population
Average, 1871–1880 ...	1,089 .....	3·0
1881–1886 ...	717 .....	2·05
1887 ...	1,256 .....	3·6

The death rate of Manchester—27·27 for the last year, 1887—has been higher than during many preceding years, as the following table will show :—

DEATH RATE OF MANCHESTER, INCLUDING THE WHOLE OF THE OLD CITY, AND EXCLUDING HARPURHEY, BRADFORD, AND RUSHOLME, FROM ALL CAUSES AND AT ALL AGES, BY THE REGISTRAR GENERAL AND THE OFFICER OF HEALTH FOR MANCHESTER :—

Year	Registrar General's Estimate	Mr. Leigh's Estimate
1881 .....	25·5 .....	24·78
1882 .....	26·6 .....	25·58
1883 .....	27·3 .....	26·17
1884 .....	26·4 .....	25·22
1885 .....	26·5 .....	24·70
1886 .....	26·1 .....	25·61
Average .....	26·4 .....	25·34

The high death-rate of 1887 is mainly due to an epidemic of measles, which was very fatal to young children. The almost universal prevalence of scarlet fever throughout a large part of England affected also the juvenile population disastrously.

During the first 52 weeks of 1887 the total deaths in Manchester were 10,401. The total deaths in 1886 were 9,523, leaving an excess of deaths in 1887 over 1886 of 878. The deaths from measles in 1887 were 695, whilst in 1886 there were but 73, leaving an excess of 622 deaths. The deaths from scarlet fever in 1887 were 313, whilst in 1886 there were 188, leaving an excess of 125. The total excess from these two diseases was 747. There were also 5 deaths from smallpox in 1887, whilst none occurred in 1886. This raises the mortality from these three causes to 752, which reduces the excess of 1887 over 1886 to 126 deaths from all other causes. The figures will be most readily understood arranged in the following table:—

TOTAL CLASSIFIED DEATHS IN MANCHESTER DURING THE YEARS  
1886 AND 1887.

Total Deaths .....	1887	...	10,401
„ „ .....	1886	...	9,523
			<hr/>
	Excess in 1887 .....		878
			<hr/> <hr/>

Epidemics—

Measles—Deaths in 1887 .....	695
„ „ 1886 .....	73
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	Excess in 1887 .....
	622
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Scarlet Fever—Deaths in 1887 .....	313
„ „ „ 1886 .....	188
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	Excess in 1887 .....
	125
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Measles—Excess in 1887 .....	622
Scarlet Fever „ „ .....	125
Smallpox „ „ .....	5
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Total .....	752
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Excess of Deaths in 1887 from all causes over 1886 .....	878
Excess from Measles, Scarlet Fever, and Smallpox.....	752
	<hr/>
Excess from all other causes .....	126
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In 1887 there were 178 deaths from diseases of the lungs in excess of those in 1886, the deaths being 3,310 in 1887 against 3,132 in 1886. The highest death-rate from lung disease in both years was in Ancoats, the rate being 10·57 in 1887, and 9·10 in 1886. The next highest death-rate in 1887 from lung disease was in Beswick, being 7·57. Close on this was the rate 7·47 in Hulme and the Central district. These are followed by 7·01 in St. George's district, whilst in Rusholme it was so low as 4·62, and in Harpurhey 4·65. The deaths from fever were almost identical in both years, and from diarrhœa there was not much difference, nor was the discrepancy from whooping cough very considerable. The excessive mortality in 1887 seems to have been confined almost entirely to measles, scarlet fever, and lung disease.

The two zymotic diseases—measles and scarlet fever, whose epidemic appearance in Manchester added so much to the mortality of 1887—are somewhat difficult to deal with from a sanitary point of view. Measles is not one of the infectious diseases for which the local authority is empowered by the Local Government Board to make special provision. The Corporation cannot pay for the treatment of cases in hospital, nor compel their isolation. Their officers, therefore, have no authority to effect their removal, and can only take such steps to limit the disease as may be effected by general sanitary measures, by exhortations to parents to prevent the spread of the disease by withholding communication of the children with unaffected persons, and the adoption of free ventilation and cleanliness. Nevertheless, a large number of cases are sent to the Hospital for Sick Children at Pendlebury, where they receive the utmost amount of skill, kindness, and attention. My friend, Dr. Ashby, one of the very able physicians of that establishment, is always ready to assist the Health Department. The power of isolation being, in a certain sense, withheld from the department, the full value of this most powerful factor in the treatment of epidemic diseases cannot be brought into action.

Scarlet fever is included in the category of infectious diseases which the Corporation has power to isolate, paying at the respective hospitals to which the cases may be sent the entire costs of maintenance. These hospitals are the Monsall Hospital, or House of Recovery, near Miles Platting, and the Hospital for Sick Children at Pendlebury. During the past year the proportion of cases reported and certified by the medical men of the City has been very large, but judging from the rate of mortality the disease on the whole has not been of a very severe type. Of all the cases notified 53 per cent. have been sent to hospital, where the treatment is probably superior to that obtainable in most private families. The difficulty in arresting the spread of scarlet fever arises from the mild form in which it frequently presents itself, either escaping the notice of the parents or caretakers of children, or having, to the unskilled eye, so much the appearance of common cold or mild sore throat as to arouse

no suspicion of its being scarlet fever. No medical man or other skilled person is consulted, and there is, therefore, no notification of the cases to the sanitary authorities. The children are allowed to play with their ordinary companions, and the disease is spread in the neighbourhood of each case ; but it does not follow that all those infected by the first case will have the disease in an equally mild form. It is only when a case of considerable severity occurs that its existence, to some extent, in a small locality, is made manifest. In a letter which has recently appeared in the Manchester newspapers, it is suggested that the children in schools should receive periodical medical inspection, so that unsuspected cases of scarlet fever, measles, and possibly whooping cough, may be detected, and the children sent home for the necessary period. Of course there are some houses in which there are reasonable means of isolation, and when such is the case disinfection is alone attended to, as the parents of the children affected would object to their removal. In the experience of the Health Department, however, the parents of such children, as a rule, are most willing and anxious to make the isolation as complete as possible. Isolation is the only means at present known for preventing the spread of the disease, and, as fully 53 per cent. of the children go to hospitals (for it is emphatically a disease of children), and great care is taken by the staff of the department to secure the isolation of the remainder, numerous as the cases have been, yet it may be imagined that but for the means adopted the fatality would have been much greater. There is some hope that the researches of modern biologists and pathologists may lead to a means of diminishing the amount of this terrible disease, which may well be called the bane of childhood. The researches of Dr. Klein and Mr. Power have given some considerable colour to the hypothesis that there is a relation between some of the eruptive ailments of cattle and human scarlatina, and at the present time investigations are going on by very competent persons to establish, if possible, this relationship. The veterinary department of the Local Government Board have able officers engaged in the enquiry, so that it may be possible to protect life from this fell disease by an agency as protective as that which has been adopted against smallpox.

Of whooping cough we scarcely know sufficient to predicate the future ; but as we know that in its early stages warmth and equality of temperature are the chief requirements, it seems a pity that no local hospitals should have been provided for the reception of these cases in their early stages. In the later stages the most marked benefit seems to be derived from free exposure to sea air or country air. The disease, however, is eminently infectious, and no child suffering from it can be sent to play with other children without a wide extension of it. So certain is this result, that no child with whooping cough is admissible to any hospital with which the writer is acquainted. No cases



are taken in at the Children's Hospital, Pendlebury; at the Clinical Hospital, Cheetham; or at Monsall Hospital. The writer has seen children during such severe weather as we have recently passed through without shoes and stockings, and with scarcely a shirt to their backs, playing in the streets of Angel Meadow, with the results that may well be anticipated when it is stated that the disease is most fatal in its inflammatory stage. More than 200 children died from whooping cough in Manchester during last year, who probably required little more than warmth, ordinary care, and the slightest medical treatment. Seeing how many we have amongst us who are really anxious to do good, and fortunately possess the means, an act of great benevolence would be performed by the establishment of one whooping cough hospital, which need not be large, if only to test the efficacy of hospital care and hospital treatment. In Manchester and it may be said in the country generally, no such hospital exists. Such an institution would afford opportunities for investigation and for testing modes of treatment that would make a large difference in the mortality of the country.

All cases of smallpox and of typhus fever, whether notified to the department by the medical attendants or otherwise, or discovered in the course of inquiry, are at once sent to hospital when removal is possible, and the utmost care taken to prevent the spread of the diseases. Cases of puerperal fever also, when the removal can be safely accomplished, are sent to Monsall Hospital. The disease is so terribly fatal, it is so readily carried from one house to another even in the clothes of the attendant, that women require to be specially guarded when their condition renders them susceptible to the disease. These cases alone are sufficient to mark the value of these great institutions. With regard to cases of typhoid fever, the Committee claim to exercise a certain discretion as to their removal. There is a great division of opinion as to the infectious character of typhoid. In many cases indeed the doubt is more than justified, and when the wards are nearly filled with cases of undoubted infection, some hesitation is exercised respecting typhoid cases. Nevertheless, where the external circumstances are very unfavourable, or the case occurs in crowded apartments and in families where no reasonable attention can be given, cases are not unfrequently admitted.

When the Health Department was first formed, in 1868, there were no beds really provided for the reception and treatment of infectious diseases. An institution called the "House of Recovery" had formerly existed in Aytoun Street for the reception of fever cases, and contained about 100 beds. This building was taken down, and the land sold by the Trustees of the Manchester Infirmary; and at the time when the Health Department was formed, the first act of the Officer of Health was to call a public meeting of the inhabitants of Manchester, and to lay these facts before them. To this meeting the



Board of the Manchester Infirmary sent, as their representative, their resident medical officer, who gave an undertaking in their name that the number of beds required in their Act of Parliament for the sale of the site of the House of Recovery, should be provided. The number of beds required by the Chairman of Committees of the House of Lords was to be sufficient for the accommodation and maintenance of 80 patients. By the munificent co-operation of a former Mayor of Manchester, Mr. Robert Barnes, this was carried out, so far as the buildings and provision of beds was concerned, and the hospital at Monsall was erected; but the maintenance of the fever patients, coming from Manchester, has devolved on the Corporation. Soon afterwards, the magnificent building erected at Pendlebury, forming the Hospital for Sick Children, was opened, and subsequently, wards were erected for the reception of fever cases in children, and many cases of measles and scarlet fever have been admitted, some of the cases of scarlet fever being paid for by the Corporation. The hospital at Monsall was entirely the result of the action of the Health Department of the Corporation, and the fine hospital at Pendlebury was much promoted by the same department.

A very large number of cases, extending over many years, including smallpox, typhus and typhoid fever, scarlet fever, diphtheria, &c., have been isolated and skilfully treated in these institutions. The deaths from typhus and typhoid alone in 1868 were 635. In 1879 they were reduced by successive decrements to 68. In 1885 they were 65, but in 1886 they were 97. As many cases as could conveniently be sent of all the forms of infectious disease enumerated have been regularly sent, but in the case of scarlet fever very many children are affected without the parents knowing the nature of the ailment, and without the illness being of sufficient severity to lead to the calling in of medical assistance, and hence children are allowed to run about amongst their playmates, and thus extend the disease. It was so important that the occurrence of cases of infectious disease should be made known to the department that legal powers were obtained a few years ago, under which medical men and certain other persons were required to communicate to the Officer of Health any such cases coming within their knowledge; for not only was the isolation of the cases in many instances imperatively important, but it was almost equally so that the houses and their contents—furniture, bedding, clothing, &c.—should be fumigated and disinfected, and such applications made as should destroy any latent or lurking infection. I am happy to speak to the ready co-operation of medical men throughout the City, and information has for a long time been received almost every morning on proper forms of the infectious diseases noted occurring within the City. The course of action is this: As soon as the postman brings in the reports, they are entered in all detail in a book specially provided for the purpose; they are then distributed to the

disinfectors of the respective districts, who, long familiarised to their duties, visit the houses, and, as the medical attendant in his report certifies whether the cases are fit for the removal to hospital or not, the inspector forms his judgment—when in the affirmative, as to the means of isolation of the case or otherwise. As a rule very little objection is made by friends to the removal of cases to hospital. On proper sanction being received a commodious and comfortable vehicle is brought down to the house, the inspector assists in the removal of the case, and it is taken to hospital. He then disinfects the house, fills the rooms with chlorine gas, washes the walls and floors with a strong solution of caustic soda, and removes clothing and bedding to the disinfecting oven, where they are completely freed from infectious matter. Each morning as the reports come in the cases are dotted on to a map of the City, divided into sanitary districts, the colour of the dots representing the character of the disease. I have alluded to the large reduction affected in the cases of typhus and typhoid, and the same may be said of smallpox. These diseases, especially the two first, occur generally in adults. Scarlet fever, measles, and whooping cough, which are largely productive of mortality, occur chiefly in young children. The Corporation undertakes, to a certain extent, the maintenance of scarlet fever, but it leaves measles and whooping cough to be dealt with by private charity.

Measles is dealt with, as already said, by private charity ; cases are very numerously received into the Children's Hospital, and as it is a disease which very rarely affects adult persons, the Pendlebury Hospital is the fitting receptacle for such cases. Scarlet fever, on the other hand, affects people at all ages, and it is necessary to isolate and keep distinct from all other persons cases of this disease.

It unfortunately happens that all these diseases at times become epidemic, and that apparently in spite of any precautions that can be taken, though no doubt the precautions that are taken serve largely to mitigate their ravages. A few years ago smallpox swept as a wave over the whole country, and we took some credit to ourselves that, by vigorous isolation and assisted by Boards of Guardians in extensive vaccination, the epidemic had fewer victims in Manchester than in almost any other town. During the last year an epidemic of measles similarly swept over the country, followed by a similar wave of scarlet fever poison, though the latter indeed was in many places concurrent with measles.

Though extremely prevalent, the epidemic of scarlet fever seems to be of a peculiar type. Dr. Ashby, Physician to the Pendlebury Hospital, informs me that in most of the cases which have come under his observation there was very little throat affection, and very little kidney disease following the attacks,



The mortality in relation to the cases has been small. Though so widely extended over Manchester, yet we have suffered less than many other places; even in the neighbouring borough of Salford, in proportion to the number of inhabitants, there have been more cases than in Manchester. The newspapers and medical journals are full now of its ravages in the east end of London, and the last number of the *Sanitary Record* relates that there are more than a thousand cases in hospital at the present time, and that there is altogether insufficient hospital accommodation for the cases seeking entrance. Probably in no town in England are the arrangements for the sanitary treatment for infectious diseases better or more complete than in Manchester.

The slight increase of deaths from disease of the lungs during 1887 are probably the result of climatic differences.

Manchester is said to have a high death-rate, but as a good deal of misapprehension exists in regard to this, I propose to consider here what it is in relation to other towns that can be fitly compared with Manchester—what has been done to lower its amount, and what is necessary to continue the diminution. The average death-rate of the six years, 1881 to 1886, both inclusive, according to the Registrar General's estimate, was 26·4; according to the estimate of the Officer of Health, 25·34. The higher number of last year, 27·27, has already been sufficiently explained by the occurrence of two epidemics within the year—measles and scarlet fever. The estimates of the Registrar General and of the Officer of Health, though not quite in accordance, are sufficiently near to each other to give reasonable confidence in their general accuracy.

The mode of estimating the population which furnishes the basis of the calculation is not quite the same, the Registrar General's being deduced from the rate of increase or decrease in the decennial preceding the last census, whilst the Officer of Health's are derived from an actual counting of the occupied houses in the city. The deaths, which are only absolutely known in the figures which represent the home death-rate, are otherwise balanced by slightly different methods. The Officer of Health contemplates during the current year to count all the deaths in the hospitals of the City, and in the workhouse hospitals of Crumpsall and Withington, of persons removed to those institutions from within the City, distributing them into their respective registration and sanitary districts. He will also place in a district category the persons removed from common lodging houses, that an idea may be formed of mere transient immigrants finding their way into the respective workhouses. This will give an absolute relation of the deaths to the population, and from the tables thus formed may be deduced the absolute death-rate, but still with a leaning against Manchester.

The death-rate of Manchester, 26·4 or 25·34, according to the estimate taken, may seem high in comparison with towns standing on a large area, as Birmingham, with a density of population of 48 persons to the acre, and a death-rate of 23·1 ; or Bristol, with a density of 47 persons to the acre, and a death-rate of 23·4 ; or Edinburgh, with 55 to the acre ; or Leeds, with 15 to the acre ; but let us take large towns with a density of population something equal to that of Manchester, where there are 80 persons to the acre, such as Glasgow, with a population of 84 persons to the acre and a death-rate almost identical with that of Manchester ; or Liverpool, with 106 persons to the acre, and whose death-rate for Liverpool proper, according to the last report of the Officer of Health for that City, is 30·5. The misleading statement that the Liverpool death-rate is less than this is seen in all its fallacy by a simple inspection of the map of the City, and the statement of the Officer of Health. Dr. Taylor, the Medical Officer, says that the parish of Liverpool, which is really Liverpool, contains 203,000 persons, and that the death-rate on the whole of this area, which constitutes Liverpool proper, is 30·5, and has been for the last ten years. The two Toxteth Parks and West Derby, which are included with it, have less real connection with Liverpool, in a sanitary point of view, than Broughton has with Manchester. Glasgow, in the social positions, occupations, and quality of its inhabitants, and general character of its manufactures, is so much allied to Manchester that a comparison of the two cities is in many respects legitimate. Both are much engaged in the cotton, coal, and iron trades. There is much female out-door occupation, almost identical density of population, and this density of population, in comparing one town with another, cannot be lost sight of. The late Dr. Farr, the highest authority in Europe, laid down the rule that the death-rate of a population has a strict relation to its density ; indeed, he once said to the writer, " Give me the density of your population, and I will tell you your death-rate." However unwilling to accept so stringent a rule from the hopeless future it presents, yet we cannot ignore it, and it points to the direction in which we must seek a reduction of our death-rate. It is a singular confirmation of the result of Dr. Farr's extended inquiries, which comprehended the whole of England, that two towns so much alike as Manchester and Glasgow should have a death-rate so coincident as Dr. Farr's prognostication would make it ; but there is this difference between the two towns, that whilst Glasgow has had six-and-a-half millions expended in the improvement of its dwellings, and has re-housed 250,000 people, Manchester has had nothing expended upon it. It may be mentioned, incidentally, that Dr. Haughton, of Dublin, has considerably expanded Dr. Farr's table.

Looking at the death-rate of Liverpool and that of Glasgow, it may, perhaps, be asked, is a mortality of 25 or 26 a high rate for Manchester ? Liverpool has many advantages of site which might be assumed to tell in its favour, and no doubt great efforts have been made, some of them costly ones, to



improve its sanitary condition. Of the action of the men of Glasgow I can speak only in terms of praise; with a death-rate almost unparalled in any great city of these kindgoms, her citizens have stepped forth with a manly courage and a princely munificence which has rarely or never been equelled in this country. Her Lord Provost has told us that the authorities have spent six-and-a-half millions of money in the destruction of her vilest slums, and in the re-housing of 250,000 of her inhabitants. The comparison of her structures and the relative health of her people have been ably set forth in one of the admirable Reports of her Medical Officer, an abstract of which, as bearing on the City of Manchester, I gave in the last Report which I laid before the Council of this City. With all this her death-rate is but as that of Manchester, where in this direction of reconstruction we have done so little. The reduction of the death-rate, however, is very great, but it is, perhaps, too much lost sight of that the reduction cannot take place immediately on the improvement. Children brought up in a foul atmosphere and under unfavourable conditions grow up stunted in growth, feeble in structure, appetite morbid, and with a constant craving for stimulants, the seeds of disease latent in the system developing as life proceeds, and closing the career before its full maturity.

Is it to be expected that such persons can spring up into health and improved vitality immediately on the bettering of their conditions and surroundings? So far from this, time must be given for the production of its due effects, and much of the work of sanitary improvement must be effected and represented in the younger race which succeeds that whose career has been doomed. The memory of the writer in his connection with Manchester goes back more than half a century. More than fifty years ago he was a medical officer of the Manchester Royal Infirmary, and was brought into daily contact with the poorest of her inhabitants. At that time the streets in Angel Meadow were mostly unpaved, and lay, if not a foot deep in mud, yet much deeper than it was pleasant to traverse. An inadequate supply of not very pure water served the wants of her inhabitants. The food was such as they could get, with no security for its quality. Fever had its haunts by the hundred, and in many parts of Ancoats, St. George's, Hulme, Chorlton, and the Central district, was never absent. He can remember the time when his lists were full of such cases, and the Fever Hospital in Aytoun Street had its beds constantly occupied. The very lecturers who filled the chairs of its medical schools, struck down by this disease, now almost unknown, died at their posts, and the names of Dr. Freckleton, Dr. Pendlebury, Dr. Philips, and others, the mantles of two of whom descended on his own shoulders, rush into his memory—nay, he can go back traditionally to the time when, in the days of an ancestor no earlier than his own grandfather, Manchester had but 15,000 inhabitants.

Let us now see what are the improvements that have been made in Manchester of a sanitary character. I have spoken of its streets; these are now all paved and sewered, flagged for the convenience of foot passengers, swept as few streets in England are swept, and its sewers ventilated by something like 2,000 shafts raised above the eaves of the houses, and springing from the highest points of the sewer system, delivering their exhalations into the highest attainable points of the atmosphere above the City. These exhalations are lighter than the air, and their natural tendency is to continue to rise. The writer has frequently seen on frosty mornings these exhalations in a considerable cone rising from the summits of the shafts. Much discussion has taken place with regard to the best mode of effecting sewer ventilation. Some people prefer to deliver the scents under the very noses of the people; others, believing that these scents are as heavy as carbonic acid, and will flow down the sewers like water, leave them to be delivered from the mouths of the sewers into the rivers; others, startled by the occasional escape of these delicious odours into the houses of the people, with the production of typhoid fever, diarrhoea, and other ailments, resorted to a series of beautiful toys called traps, which they distinguished as bell-traps, and by other euphonious names, forgetful of the fact that gases, absorbed by the lower surfaces of liquids, were delivered from the upper surfaces without much let or hindrance. I am of opinion that an extension of these shafts is desirable. There is no part of Manchester in which the smell of sewer gases can now be much perceived, and this is an observation not only of those living in our midst, but of visitors to Manchester, who come for sanitary inquiries. It is not necessary to go back so far as the writer's memory extends, for there must be some on the present Health Committee whose memory will furnish them with recollections of almost unendurable sewer scents at the commencement of their operations. In place, then, of muddy and undrained streets, and later on sewer exhalations, we have streets dry, clean, well paved, thoroughly sewered, and free from sewer smells. It is proposed to deal still further with the sewers, and it is possible that if sufficient water is brought to the City to furnish a head of water for the flushing of the sewers, a still further improvement in their condition may take place. But I might have mentioned that within the time of the present Health Committee, a very large number of the sewers of the City were filled with black seething mud, horribly offensive with sulphuretted hydrogen, reaching nearly to the crown of the arch. A very large number of these were sunk down to and opened by the Officer of Health, and it was no unusual thing to find streets almost their whole length covered with the black mud that had been taken from the sewers. Some years afterwards these sewers were again sunk down to by the Officer of Health, and found to contain little more than a few inches of grey silt. The remarkable work of Dr. Attfield



on sewers and sewer gases, recently published, may be advantageously studied in relation to this subject, as he has made some of the most recent investigations on sewers and sewer gases.

It would not be just to leave the streets without some allusion to the action of the building bye-laws of the Corporation. Imperfect as they are, old Manchester presents us with streets formed of rows of houses, built back to back, with no ventilation through them, and with such accommodation for the necessities of life as memory may supply us with, and which are even still inadequate. The newer parts of the city falling under the amended bye-laws have their streets wider, have a through passage, have yards to each house, a space of 24 feet between the backs of the houses, and passages five feet wide. Though insufficient, yet here is greatly amended ventilation over the streets of older dwellings. The time will doubtless come when these old houses will be swept away and their area covered with better dwellings; when the alleys of the old town will be widened into streets; when ventilation will be furnished to the backs as well as to the fronts; when the long continuous rows will be broken by crossings furnishing new streets for the area; when fresh air will find access to the poisoned denizens breathing at present but their own exhalations of breath and skin. Even the still further amended bye-laws at present under consideration will do much to help this in the newer parts of the city yet to be constructed.

Turning to the means of existence of the people, the improved water supply is that which first presents itself as having been accomplished within recent years. For all domestic purposes, the people of Manchester have been furnished with an abundant supply of the purest and sweetest water, and the efforts now being made to bring the water of Thirlmere here will relieve us from the possible famine by vicissitudes of seasons, and will furnish abundant quantity for extraneous purposes.

The inspection of the markets by skilled persons, and the careful analysis of milk and food of all kinds by properly skilled officers, protects the people from unwholesome and improper food to a large extent, however supplied. Not only meat, fish, milk, fruit, and vegetables are carefully examined, but even the smaller articles customary in diet receive attention.

The erection of the abattoirs in Water Street made a considerable change in the provision of good meat for the City inhabitants. Not only were a better class of cattle and sheep brought to the abattoirs, but all diseased animals were carefully excluded, more skill and therefore greater humanity was brought to the poor animals, and the slaughter-houses were kept cleaner and freer from nuisance than had been usual in private establishments, whilst the thorough ventilation of the portion where the meat was hung for sale added much to its

fitness for consumption. These erections led to the extinction of a large number of slaughter-houses in the City. Some were in a very bad state, confined, dirty, badly ventilated, and having heaps of half-putrid matter on the premises, or in the immediate vicinity. Mr. Rooke and the writer visited all the slaughter-houses in the City; the worst were reported upon, and recommended to be closed; their work is now done under proper inspection in the public slaughter-houses. There are not now very many places for private slaughter in the whole City, and these are very much improved.

The whole of the bakehouses have also been visited by Mr. Rooke and the writer; many have been closed as unfit for their purposes, and the others have been placed under the regulations of the Local Government Board, and in cleanliness and ventilation are also very much improved.

The daily papers give evidence of the activity with which the scientific examination of the very important article of milk is pursued, and reliance can now be legitimately placed on the character of the article which constitutes the true pabulum of infant life.

The pollution of the atmosphere by burial grounds within the City has been so thoroughly dealt with that there remains scarcely a plot of land for interments within the City boundaries.

The mingling of elements in the atmosphere from chemical manufactories and other works is now so slight, from the removal of these works to sites outside the City, that their injury, if any, can only be felt by their being carried over the boundaries. Almost the only pollution from works of any kind to the atmosphere is given by the smoke, which almost ceaselessly pours out from the tall chimneys of the City. In my previous reports I have treated of this so very amply, and, I fear to say, so hopelessly that it may not be necessary to enlarge upon it. The gradual growth of gas engines, and the improvements effected in the combustion of smoke may tell their tale in another time, and electricity may play an important part in the abolition of the smoke nuisance.

It may be mentioned that all dairies and cattle sheds are under the inspection of the Corporation.

Arrangements are being made for the purification of the rivers. The sewers will be diverted from their terminal courses. Refuse matters will cease to be thrown in, and it is hoped when the Local Authorities betwixt us and the sources of the rivers have dealt in a similar spirit with the waters flowing through their territories, limpid and pellucid streams will gladden our eyes, and that for many purposes the waters will be available for the requirements of the City. Already baths and wash-houses in considerable numbers have



been provided for the citizens, and means of personal cleanliness, so important to health, rendered available both for the skin and for the clothing. No doubt the action of these polluted rivers on health has been mitigated by the large quantity of mineral salts thrown into the streams, which must coagulate and modify the animal and vegetable matters too abundantly contributed. The difficulty of obtaining any gas, the result of decomposition, where the streams are actively running somewhat corroborates this view.

Perhaps the largest and the most important alteration effected by the Health Authority was in the abolition of the old cesspools for the city, the reconstruction of more than 60,000 dry closets, and the removal of excreta at short intervals. Necessity drove the Health Department to a course of action which they believe has been greatly beneficial. Before the adoption of any scheme inquiries were made whether water could be supplied if the removal of excreta by water carriage were to be adopted. The reply was emphatically in the negative, and it appeared for a time that only the dry system of removal was practicable. An ingenious gentleman, an able engineer, and with a very comprehensive view, brought forward a scheme which had many advantages, and which was strongly recommended to the Committee by a member very competent to judge of its merits. It had so much to recommend it, and appeared to work so satisfactorily, that only an apprehension of the cost of its construction and working prevented, at any rate, a partial trial of it. Whether the water difficulty might have been in the way I am unprepared to say, but the ample supply afforded by Thirlmere and the construction of reception reservoirs looming in the future may give it reconsideration. I allude, of course, to the scheme propounded by Captain Liernur.

In thus summarising some of the main work effected for sanitary purposes, the closing of all the cellars of the City as human dwellings must not be omitted. There are many minor matters, of course, but they may all be studied in greater detail in my earlier reports.

The sanitary treatment of infectious diseases as carried out in Manchester has been already described.

I have just given a very brief summary of what has been done *outside the dwellings of the people* to improve their health and lessen the death-rate. The result has been to bring down the latter from 32 or 33 per 1,000 to 25 or 26. Practically to abolish typhus fever in the City, and so to mitigate typhoid as to lower the total deaths to an amount between 50 to 100, against 640 at the commencement of our operations. I am now speaking of the total annual deaths. That the total death-rate of Glasgow should not be lower than this, I have, I think, given sufficient reasons for.

Manchester is emphatically a City of cottages, and its population consists entirely of working men and women, from the lowest class to that of skilled artizans, with a sprinkling of shopkeepers, warehousemen, and clerks, though many of the latter live outside. Its mortality is that of the working classes, emphasised by its density of population. Every person above this class who leaves the City to live outside increases the death-rate. Take the old Township of Manchester, comprising the registration districts of Ancoats, St. George's (lying between the River Irk and Oldham Road), and the three registration districts of Market Street, Deansgate, and London Road, now included in the Central district, and you have a population of the most reduced and sordid class.

Many of them industrious to a degree in Ancoats, largely composed of Irish immigrants in St. George's and much of Ancoats, and vicious and depraved in the Market Street and Deansgate districts. The houses are amongst the oldest in the City, the walls saturated with animal exhalations and reeking with polluted atmosphere. Hulme is still composed of cottages, though of a better class, but its density of population is very high, and the lower parts, between Chester Road and City Road, are old and dilapidated. The same may be said of the houses lying between the Medlock and Clarendon Street in Chorlton-upon-Medlock. The very upper part of Chorlton-upon-Medlock, adjacent to Oxford Road, has a few better houses, but they tell little in the aggregate. The same may be said of Ardwick, which is nearly all cottages of an inferior description. Now, most of the streets in which these cottages lie are narrow, little more than alleys, with few crossings, and utterly deficient in ventilation. The population of Cheetham lends little assistance, for the bulk of it is congregated about Red Bank, in some of the worst streets of the City. These circumstances, thus broadly described, are bad enough, but it is the houses that make the heavy mortality. Let anyone accustomed to a better condition in life put his head into one of them and he will be met with a mephitic atmosphere, the like of which is not to be found in the domicile of any other animal. Stables and shippens, and even pig-styes, have their peculiar smells, but they are not poisonous, or repulsive, or offensive, as these. No animal could live in them and flourish. To describe their nauseous character, I have sometimes said, in a bantering spirit, put a pig into one of them and feed him on the best for a twelvemonths, and he will come out a lean pig; and yet industrious men and women and little children live in these, and their weak frames and pallid faces tell of their surroundings. Now, what says Dr. Farr?—that their death-rate is in proportion to their crowding. What Dr. Percy Frankland and other investigators?—that the living microbes and other organised elements of disease are proportionate to the cubic space given to each person. What Dr. Angus Smith?—that the proportion of decomposing matter is in strict



relation. What Dr. Richardson?—that ozone, that vivifying element, is almost absent. The latter made a most interesting and valuable series of experiments. He confined an animal in a given volume of air, and it lived for a certain time; another in a similar volume of oxygen, and its life was prolonged. He took out the carbonic acid respired by the animal into the last jar, and replaced an animal in the pure oxygen left. It lived no longer than in common air; the oxygen had lost something necessary to life. He ozonised the oxygen, and restored its power of sustaining life, so that this wonderful vitalizing agent, the spirit of life, without which no animal can healthily live, was the little known substance, ozone—unknown in my earlier days, and hailed as a discovery, the nature of which was long a mystery to men of science. It is now known to be condensed oxygen, with remarkable powers, and whose significance in the world of life we are beginning but dimly to understand. What say MM. Brown-Séquard and de Arsonval, two eminent French savants, in a communication to the French Academy of Sciences?—that they had been engaged on experiments which have demonstrated that air from the lungs of man contains one or more poisonous principles; in fact, the lungs secrete a poison which is given off with expired air, and which is a cause of the unhealthy and dangerous condition of confined air.

Let us endeavour to realize to ourselves the medium in which many a respectable working man and his family live, breathe, sleep, and have their being—poisoned by their own breath, breathing an atmosphere unfitted to support life from want of ozone, swarming with microbes, the living elements and decomposing organic matter, the dead elements of disease—and ask ourselves if a death-rate of 25 per 1,000 is really a high rate? Surely the time is come when we must look this matter in the face, cost what it will. I may be told it would be cheaper to build a new Manchester than to resuscitate the old, and perhaps it would; but the land is there, soaked with pollution it may be, but its value is too great to be ignored. I say that we have nearly done for Manchester what we can do up to the doors of the houses, but we have scarcely sufficient power to enter therein and to make them healthy; but we must do something—we must sweep out their microbes, give them ozone, drive out their poisons, let water and fresh air purify all within and without them, increase their cubic space and make them fit to live in, which at present they are not. This is the work before us to which all others are secondary and subordinate. An attempt is being made to provide more open spaces; to elevate the minds of the people by instruction in arts, literature, and science; to open out courts by a committee under the presidency of a most earnest and courteous gentleman; but we must do more than this, we must drive more streets through the densest parts of the City, take down obstructive blocks, enlarge the cubic space in dwellings and ventilate them

from within, and the death-rate may come down to that of the districts in which these things are found. It is a matter, however, requiring careful study, and we have some examples in Manchester that may serve to guide us. There are workmen's houses occupying several streets where the death-rate was little more than 12 per 1,000. There is a district, surrounded by others with a large death-rate, and itself bounded by one of our rivers, where the death-rate is but 17 per 1,000. On the other hand, there is a township—with nearly 10,000 people—newly built within the last twenty years, wherein the death-rate is as high as 22 per 1,000. What can I do, then, but ask for co-operation, and this from the whole community. It requires that all should assist, within the Corporation and without.

No doubt the habits of the people have much to do with their want of health—their drinking habits the most seriously. Intemperance on the part of mothers leads to neglect of children and a high infant mortality, of which I have met with many striking instances. I am afraid this is the cause which operates to a larger extent than is commonly supposed. Intemperance on the part of the men is destructive of all comfort and well-being, and prevails to a larger extent in such a community as that which forms a great portion of Manchester than perhaps in any other, and it is a question to what extent is it the cause or the consequence. Does the drunkard make the unhealthy home or the unhealthy home the drunkard? I have described some of the dwellings. Would not such a dwelling drive a man to a bright fire, blaze of gas, spacious room, and hilarity of comrades? Even if there were no other cause, I confess if I were placed under the temptation I might be no more able to resist than the denizens of the dens described.

(Signed) JOHN LEIGH,

*Medical Officer of Health for the*

*City of Manchester.*

Town Hall, Manchester,

9th April, 1888.

## CASES OF INFECTIOUS DISEASES.

During 1887 there were 66 cases of smallpox, 27 of typhus fever, 503 of typhoid fever, 2,688 of scarlet fever, 21 of puerperal fever, and 166 of diphtheria reported; of these 1,647 were sent to Monsall and Pendlebury hospitals and 79 were admitted into workhouse and other hospitals. The number of infected articles stoved was 21,092. The number of houses thoroughly cleansed was 544, and the remainder were disinfected.



THE NUMBER OF BIRTHS AND DEATHS AND THE PROPORTION OF BIRTHS TO  
100 DEATHS IN EACH REGISTRATION SUB-DISTRICT.

Registration Sub-District	Births	Deaths	Proportion of Births to 100 Deaths
Ancoats .....	1,845	1,484	124·3
Central .....	1,178	921	127·9
St. George's.....	2,361	1,636	144·3
Hulme .....	2,616	1,777	147·2
Chorlton-upon-Medlock .....	1,633	1,168	139·8
Ardwick .....	1,212	750	161·6
Cheetham .....	867	491	176·5
Beswick .....	428	217	197·2
Harpurhey .....	230	126	182·5
Bradford .....	809	432	187·2
Rusholme .....	313	184	170·1
Infirmery and Monsall Hospital...	—	605	—
Crumpsall Workhouse .....	168	837	—
Total .....	13,660	10,628	128·5

## DETAILS OF DEATHS.

## DEATHS FROM MEASLES, AND RATE PER 1,000 OF POPULATION.

	1886		1887	
	Deaths	Death Rate	Deaths	Death Rate
Ancoats .....	13	·27	85	1·7
Central .....	8	·20	54	1·3
St. George's .....	7	·11	168	2·7
Hulme .....	15	·19	167	2·2
Chorlton-upon-Medlock .....	6	·10	62	1·0
Ardwick .....	5	·15	42	1·2
Cheetham .....	0	—	33	1·2
Beswick .....	0	—	17	1·8
Harpurhey .....	1	·15	7	1·0
Bradford .....	10	·47	33	1·5
Rusholme .....	1	·07	9	·67
Royal Infirmary .....	0	—	0	—
Monsall Hospital .....	7	—	14	—
Crumpsall Workhouse .....	0	—	5	—
	<u>73</u>	<u>·18</u>	<u>697</u>	<u>1·7</u>

## DEATHS FROM MEASLES IN EACH MONTH.

1886		1887	
	Deaths		Deaths
January .....	5	January .....	48
February .....	7	February .....	34
March .....	8	March .....	82
April .....	4	April .....	139
May .....	1	May .....	112
June .....	4	June .....	105
July .....	3	July .....	87
August .....	1	August .....	53
September .....	3	September .....	14
October .....	8	October .....	12
November .....	14	November .....	7
December .....	15	December .....	4
	<u>73</u>		<u>697</u>



## DEATHS FROM WHOOPING COUGH, AND RATE PER 1,000 OF POPULATION.

	1886		1887	
	Deaths	Death Rate	Deaths	Death Rate
Ancoats .....	24 ...	·50	38 ...	·79
Central .....	19 ...	·49	16 ...	·40
St. George's .....	53 ...	·88	54 ...	·87
Hulme .....	52 ...	·68	33 ...	·44
Chorlton-upon-Medlock.....	28 ...	·49	19 ...	·32
Ardwick.....	20 ...	·63	13 ...	·40
Cheetham .....	7 ...	·27	4 ...	·15
Beswick .....	5 ...	·58	13 ...	1·38
Harpurhey .....	6 ...	·90	2 ...	·30
Bradford.....	10 ...	·47	5 ...	·23
Rusholme .....	2 ...	·14	0 ...	—
Royal Infirmary.....	0 ...	—	0 ...	—
Monsall Hospital .....	1 ...	—	0 ...	—
Crumpsall Workhouse .....	2 ...	—	5 ...	—
	<hr/>	<hr/>	<hr/>	<hr/>
	229	·59	202	·51
	<hr/>	<hr/>	<hr/>	<hr/>

## DEATHS FROM WHOOPING COUGH IN EACH MONTH.

1886		1887	
	Deaths		Deaths
January .....	18	January .....	40
February .....	13	February .....	24
March .....	21	March .....	13
April.....	29	April.....	26
May .....	32	May .....	16
June .....	15	June.....	15
July .....	29	July .....	14
August .....	17	August.....	11
September .....	7	September .....	5
October.....	9	October .....	6
November.....	16	November .....	7
December.....	23	December.....	25
	<hr/>		<hr/>
	229		202
	<hr/>		<hr/>

## DEATHS FROM FEVER, AND RATE PER 1,000 OF POPULATION.

	1886		1887	
	Deaths	Death Rate	Deaths	Death Rate
Ancoats .....	13 ...	·27	22 ...	·46
Central .....	7 ...	·18	4 ...	·10
St. George's .....	14 ...	·23	19 ...	·30
Hulme.....	11 ...	·14	16 ...	·21
Chorlton-upon-Medlock.....	19 ...	·33	15 ...	·25
Ardwick .....	11 ...	·34	9 ...	·27
Cheetham .....	1 ...	·04	5 ...	·19
Beswick .....	2 ...	·23	1 ...	·10
Harpurhey .....	2 ...	·30	2 ...	·30
Bradford.....	8 ...	·37	5 ...	·23
Rusholme .....	0 ...	—	1 ...	·07
Royal Infirmary .....	3 ...	—	1 ...	—
Monsall Hospital .....	16 ...	—	16 ...	—
Crumpsall Workhouse .....	6 ...	—	2 ...	—
	<hr/>	<hr/>	<hr/>	<hr/>
	113	·29	116	·29
	<hr/>	<hr/>	<hr/>	<hr/>

## DEATHS FROM FEVER IN EACH MONTH.

1886		1887	
	Deaths		Deaths
January .....	17	January .....	10
February .....	12	February .....	13
March .....	8	March .....	11
April.....	6	April .....	14
May .....	9	May .....	5
June .....	4	June.....	7
July .....	9	July.....	6
August .....	4	August .....	4
September.....	6	September .....	6
October.....	12	October .....	21
November.....	11	November .....	5
December .....	17	December.....	16
	<hr/>		<hr/>
	113		118
	<hr/>		<hr/>



## DEATHS FROM SCARLATINA, AND RATE PER 1,000 OF POPULATION.

	1886		1887	
	Deaths	Death Rate	Deaths	Death Rate
Ancoats .....	7 ...	·14	16 ...	·33
Central .....	12 ...	·30	9 ...	·22
St. George's .....	14 ...	·23	37 ...	·60
Hulme .....	15 ...	·19	54 ...	·72
Chorlton-upon-Medlock .....	29 ...	·51	32 ...	·55
Ardwick .....	25 ...	·78	13 ...	·40
Cheetham .....	6 ...	·23	12 ...	·46
Beswick .....	2 ...	·23	3 ...	·32
Harpurhey .....	1 ...	·15	6 ...	·90
Bradford .....	5 ...	·23	9 ...	·42
Rusholme .....	4 ...	·29	5 ...	·37
Royal Infirmary .....	0 ...	—	1 ...	—
Monsall Hospital .....	67 ...	—	121 ...	—
Crumpsall Workhouse .....	1 ...	—	0 ...	—
	<u>188</u>	<u>·48</u>	<u>313</u>	<u>·80</u>

## DEATHS FROM SCARLATINA IN EACH MONTH.

1886		1887	
	Deaths		Deaths
January .....	8	January .....	37
February .....	4	February .....	22
March .....	9	March .....	21
April.....	15	April.....	20
May .....	9	May .....	12
June .....	12	June.....	19
July .....	13	July .....	23
August .....	13	August .....	16
September .....	14	September .....	33
October.....	31	October .....	43
November.....	32	November .....	32
December.....	28	December.....	40
	<u>188</u>		<u>318</u>

## DEATHS FROM DIARRHŒA, AND RATE PER 1,000 OF POPULATION.

	1886		1887	
	Deaths	Death Rate	Deaths	Death Rate
Ancoats .....	91 ...	1·91	76 ...	1·59
Central .....	58 ...	1·49	61 ...	1·54
St. George's .....	71 ...	1·18	80 ...	1·30
Hulme.....	90 ...	1·19	82 ...	1·10
Chorlton-upon-Medlock.....	59 ...	1·04	59 ...	1·01
Ardwick .....	50 ...	1·58	44 ...	1·35
Cheetham .....	16 ...	·63	27 ...	1·04
Beswick .....	7 ...	·82	10 ...	1·06
Harpurhey .....	3 ...	·45	4 ...	·60
Bradford.....	15 ...	·70	11 ...	·51
Rusholme .....	7 ...	·52	5 ...	·37
Royal Infirmary.....	0 ...	—	0 ...	—
Crumpsall Workhouse .....	9 ...	—	6 ...	—
	<u>476</u>	<u>1·23</u>	<u>460</u>	<u>1·19</u>

SEASONS IN WHICH THE GREATER NUMBER OF DEATHS OCCUR FROM  
DIARRHŒA.

1886				1887			
			Deaths				Deaths
Week ending June	5	...	7	Week ending June	4	...	3
„ „	12	...	4	„ „	11	...	1
„ „	19	...	4	„ „	18	...	8
„ „	26	...	3	„ „	25	...	3
„ July	3	...	4	„ July	2	...	5
„ „	10	...	9	„ „	9	...	13
„ „	17	...	2	„ „	16	...	8
„ „	24	...	8	„ „	23	...	17
„ „	31	...	15	„ „	30	...	31
„ Aug.	7	...	16	„ Aug.	6	...	45
„ „	14	...	10	„ „	13	...	46
„ „	21	...	17	„ „	20	...	46
„ „	28	...	23	„ „	27	...	40
„ Sept.	4	...	43	„ Sept.	3	...	28
„ „	11	...	58	„ „	10	...	28
„ „	18	...	58	„ „	17	...	20
„ „	25	...	38	„ „	24	...	15
„ Oct.	2	...	36	„ Oct.	1	...	13
„ „	9	...	16	„ „	8	...	7
„ „	16	...	17	„ „	15	...	6
„ „	23	...	13	„ „	22	...	1



TABLE SHOWING THE NUMBER OF DEATHS FROM THE FIVE ZYMOTIC DISEASES,  
 VIZ. :—MEASLES, SMALLPOX, WHOOPING COUGH, SCARLATINA, AND FEVER ;  
 ALSO THE NUMBER OF DEATHS FROM OTHER CAUSES.

	1886			1887		
	Zymotic Diseases	Other Causes	Total Deaths	Zymotic Diseases	Other Causes	Total Deaths
Ancoats .....	57	1,161	1,218	162	1,322	1,484
Central .....	46	840	886	83	838	921
St. George's .....	88	1,226	1,314	278	1,358	1,636
Hulme.....	93	1,530	1,623	270	1,507	1,777
Chorlton-upon-Medlock	82	1,058	1,140	128	1,040	1,168
Ardwick .....	61	618	679	77	673	750
Cheetham .....	14	437	451	54	437	491
Beswick .....	9	184	193	34	183	217
Harpurhey .....	10	112	122	17	109	126
Bradford .....	33	396	429	52	380	432
Rusholme .....	7	142	149	15	169	184
Royal Infirmary .....	3	369	372	2	438	440
Monsall Hospital .....	91	22	113	156	9	165
Crumpsall Workhouse..	9	825	834	12	825	837
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	603	8,920	9,523	1,340	9,288	10,628
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

DEATHS FROM DISEASES OF THE LUNGS, AND RATE PER 1,000 OF  
POPULATION.

1886				
	Deaths at all Ages		Rate per 1,000 of Population	Deaths under 5 years
Ancoats .....	434	.....	9.10	133
Central .....	282	.....	7.25	76
St. George's .....	382	.....	6.35	121
Hulme .....	548	.....	7.25	169
Chorlton-upon-Medlock.....	352	.....	6.22	80
Ardwick .....	209	.....	6.59	70
Cheetham .....	143	.....	5.65	41
Beswick .....	58	.....	6.80	24
Harpurhey .....	37	.....	5.56	9
Bradford.....	144	.....	6.80	67
Rusholme .....	49	.....	3.65	10
Royal Infirmary.....	57	.....	—	0
Monsall Hospital .....	6	.....	—	0
Crumpsall Workhouse .....	431	.....	—	13
	<u>3,132</u>		<u>8.12</u>	<u>813</u>

DEATH FROM DISEASES OF THE LUNGS, AND RATE PER 1,000 OF  
POPULATION.

1887				
	Deaths at all Ages		Rate per 1,000 of Population	Deaths under 5 years
Ancoats .....	504	.....	10.57	180
Central.....	296	.....	7.47	83
St. George's .....	431	.....	7.01	113
Hulme .....	553	.....	7.47	143
Chorlton-upon-Medlock .....	328	.....	5.64	81
Ardwick .. ..	222	.....	6.84	71
Cheetham .....	132	.....	5.11	42
Beswick .....	71	.....	7.57	30
Harpurhey .....	31	.....	4.65	11
Bradford .....	151	.....	7.13	77
Rusholme .....	62	.....	4.62	17
Royal Infirmary .....	75	.....	—	0
Monsall Hospital.....	1	.....	—	0
Crumpsall Workhouse.....	453	.....	—	30
	<u>3,310</u>		<u>8.49</u>	<u>878</u>



TABLE SHOWING THE AGES AT DEATH ; ALSO THE PROPORTION PER CENT.  
WHICH THE DEATHS AT EACH AGE BEAR TO THE TOTAL DEATHS.

1886

	Under 1 year	Under 5 years	5 years and above	Total Deaths	Rate per cent. under 1 year	Rate per cent. under 5 years	Rate per cent. 5 years and above
Ancoats .....	405	648	570	1,218	33·2	53·2	46·8
Central .....	251	380	506	886	38·3	42·9	57·1
St. George's.....	391	675	639	1,314	29·7	51·4	48·6
Hulme.....	518	784	839	1,623	31·9	48·3	51·7
Chorlton-upon-Medlock.	292	447	693	1,140	25·6	39·2	60·8
Ardwick .....	213	336	343	679	31·3	49·4	50·6
Cheetham .....	108	179	272	451	23·9	39·7	60·3
Beswick .....	60	97	96	193	31·1	50·3	49·7
Harpurhey .....	32	52	70	122	26·3	46·4	53·6
Bradford .....	147	238	191	429	34·2	55·4	44·6
Rusholme .....	28	42	107	149	18·8	28·2	71·8
Royal Infirmary .....	3	14	358	372	·8	3·8	96·2
Monsall Hospital .....	0	2	111	113	—	1·8	98·2
Crumpsall Workhouse..	36	56	778	834	4·3	6·7	93·3
	<u>2,484</u>	<u>3,950</u>	<u>5,573</u>	<u>9,523</u>	<u>26·1</u>	<u>41·5</u>	<u>58·5</u>

TABLE SHOWING THE AGES AT DEATH ; ALSO THE PROPORTION PER CENT.  
WHICH THE DEATHS AT EACH AGE BEAR TO THE TOTAL DEATHS.

1887

	Under 1 year	Under 5 years	5 years and above	Total Deaths	Rate per cent. under 1 year	Rate per cent. under 5 years	Rate per cent. 5 years and above
Ancoats .....	432	790	694	1,484	29·1	53·2	46·8
Central .....	251	442	479	921	27·2	48·0	52·0
St. George's .....	477	870	766	1,636	29·1	53·1	46·9
Hulme .....	455	880	897	1,777	25·6	49·5	50·5
Chorlton-upon-Medlock	267	448	720	1,168	22·8	38·3	61·7
Ardwick.....	234	378	372	750	31·2	50·4	49·6
Cheetham .....	107	218	273	491	21·8	44·4	55·6
Beswick .....	69	125	92	217	31·8	57·6	42·4
Harpurhey.....	35	57	69	126	27·7	45·2	54·8
Bradford .....	138	261	171	432	31·9	60·4	39·6
Rusholme .....	42	69	75	184	22·8	37·5	62·5
Royal Infirmary.....	2	19	42	440	·4	4·3	95·7
Monsall Hospital .....	0	0	165	165	—	—	—
Crumpsall Workhouse ..	68	97	740	837	8·1	11·5	88·5
	<u>2,557</u>	<u>4,634</u>	<u>5,994</u>	<u>10,628</u>	<u>24·2</u>	<u>43·6</u>	<u>56·4</u>

(Signed) JOHN LEIGH,

Town Hall, Manchester,

9th April, 1888.

*Medical Officer of Health for the**City of Manchester.*





# DESCRIPTION OF MAP.

The thick black lines on the map submitted with the present report indicate the boundaries of the Registration Sub-Districts of Manchester, the thin black lines within the thick ones shew the Sanitary Districts into which each Registration Sub-District is divided, and the black figures are those by which the Sanitary Districts are numbered. The red figures denote the area of each Sanitary District in acres, and the blue figures shew the number of persons per acre on the whole of that area. Many of the Sanitary Districts being crowded by Warehouses, Works, Railway Stations, &c., we have arrived at the actual number of persons per acre by getting out the area on which the inhabited houses stand, including all streets, courts, and passages in which the houses are situated, the number of persons on this area being shewn on the map by the yellow figures.

## SKETCH MAP OF THE CITY OF MANCHESTER WITH THE ACREAGE AND THE NUMBER OF PERSONS PER ACRE IN EACH SANITARY DISTRICT.

RED FIGURES DENOTE THE NUMBER OF ACRES IN EACH SANITARY DISTRICT.

BLUE FIGURES DENOTE THE NUMBER OF PERSONS PER ACRE OF TOTAL AREA.

YELLOW FIGURES DENOTE THE NUMBER OF PERSONS PER ACRE, COVERED BY OCCUPIED HOUSES















